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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/697,037	10/31/2003	Robert L. Cobene II	200300643-1	8371

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EXAMINER

GATES, ERIC ANDREW

ART UNIT	PAPER NUMBER
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3722

MAIL DATE	DELIVERY MODE
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05/18/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/697,037

Applicant(s)

COBENE ET AL.

Examiner

Eric A. Gates

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 February 2007.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 3-71 is/are pending in the application.
- 4a) Of the above claim(s) 42-71 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 and 3-41 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

1. This office action is in response to Applicant's amendment filed on 12 February 2007.
2. The indicated allowability of claims 2-10, 13, 14, 16-18, 20, 21, 23-31, 34, 35, 37, 38, 40, and 41 is withdrawn in view of the new interpretation of Lawton, and the addition of other references for 35 U.S.C. 103 rejections. Rejections based on the newly cited reference(s) follow.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1, 11, 12, 15, 16, 19, 22, 23, 32, 33, 36, and 39 are rejected under 35 U.S.C. 102(e) as being anticipated by Lawton (U.S. Patent Publication 2003/0086773 A1).
5. Regarding claim 1, Lawton discloses a method of binding a text body to a cover 104 with an adhesive to form a bound document, the method comprising: applying an adhesive 110 to a contacting surface (the edge and adjacent sides) of a plurality of

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sheets 102 of the text body on an individual sheet-wise basis; and adhering the plurality of sheets to the cover 104 on an individual sheet-wise basis by making line contact between the contacting surface and the cover and by curing (pressing activates the adhesive and forms a cohesive bond) the adhesive (see paragraphs [0043] to [0045] and [0060] to [0061], and figures 8 and 9), wherein the applied adhesive 110 forms a non-zero contact angle with the contacting surface 104 (what would be considered portion 112 of sheet 102(1) in figure 8 has a non-zero contact angle with respect to the side of the sheet where adhesive portion 112 ends; this portion of the adhesive on sheet 102(1) makes line contact with cover 104 as seen in figure 8).

6. Regarding claim 11, Lawton discloses wherein the plurality of sheets 102 includes an unfolded sheet and the contacting surface is an edge of the unfolded sheet (see figure 8).

7. Regarding claim 12, Lawton discloses constraining the sheet 102 to maintain the edge straight (using alignment system 120, see figure 8).

8. Regarding claim 15, Lawton discloses wherein the contacting surface makes line contact with the cover 104 in an area of a spine 106 of the bound document (see figures 8 and 9).

9. Regarding claim 16, Lawton discloses wherein the adhesive 110/108 is a two-part adhesive system.

10. Regarding claim 19, Lawton discloses forming the cover around the text body (see figures 8 and 9).

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11. Regarding claim 22, Lawton discloses wherein the applied adhesive 110 is a first part of a two-part adhesive system and the method comprises applying a second part 108 of the two-part adhesive system to the cover 104 prior to adhering the plurality of sheets to the cover on an individual sheet-wise basis (see figures 8 and 9).

12. Regarding claim 23, Lawton discloses wherein the applied first part 110 of the two-part adhesive system forms a non-zero contact angle with the contacting surface (at least at portion 112 of sheet 102(1) as described above in the rejection of claim 1).

13. Regarding claim 32, Lawton discloses wherein the plurality of sheets 102 includes an unfolded sheet and the contacting surface is an edge of the unfolded sheet (see figure 8).

14. Regarding claim 33, Lawton discloses constraining the sheet 102 to maintain the edge straight (using alignment system 120, see figure 8).

15. Regarding claim 36, Lawton discloses wherein the contacting surface makes line contact with the cover 104 in an area of a spine 106 of the bound document (see figures 8 and 9).

16. Regarding claim 39, Lawton discloses forming the cover around the text body (see figures 8 and 9).

Claim Rejections - 35 USC § 103

17. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

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invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

18. Claims 3 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lawton in view of Bergholtz et al. (U.S. Patent 6,799,391).

Regarding claims 3 and 24, Lawton discloses the invention substantially as claimed, except Lawton does not disclose that a viscosity of the adhesive is greater than 1000 centipoises and less than 15,000 centipoises. Bergholtz et al. teaches the use of an adhesive that has a viscosity in the range of 1,500 to 4,500 centipoises for the purpose of having it be readily usable in the printing machinery employed. Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to have combined the method of Lawton with the adhesive of Bergholtz et al. in order to have a method of binding that includes an adhesive that has the desired viscosity for the adhesive applicator used.

19. Claims 4, 5, 25, and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lawton in view of Garrido (U.S. Patent 6,213,703).

Regarding claims 4, 5, 25, and 26, Lawton discloses the invention substantially as claimed, except Lawton does not disclose preparing each of the plurality of sheets of the text body along the contracting surface prior to applying the adhesive, or wherein preparing increases a surface area of the contacting surface, exposes a plurality of base fibers of the sheets, or increases the surface area and exposes the plurality of base fibers. Garrido teaches a method of binding books in which the edges of the sheets of paper are cut using a knife 50 such that the fibers of the paper are exposed

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for the purpose of improving the adhesiveness of the glue applied to the spine of the book block. Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to have combined the method of Lawton with the edge preparation of Garrido in order to have a method of binding in which the papers are bound to the book in a stronger manner.

20. Claims 6-10, 17, 18, 20, 21, 27-31, 37, 38, 40, and 41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lawton in view of Payne (U.S. Patent 6,273,661).

Regarding claims 6-10, 17, 18, 20, 21, 27-31, 37, 38, 40, and 41, Lawton discloses the invention substantially as claimed, except Lawton does not disclose wherein applying the adhesive includes dispensing the adhesive from a dispenser, the dispenser including a time-pressure system, a piston-valve system, an auger-valve system, or a jetting system; wherein applying the adhesive includes dispensing the adhesive from a dispenser including a Micro-Electro-Mechanical System; wherein the Micro-Electro-Mechanical System is a thermal ink jet device; wherein applying the adhesive includes dispensing the adhesive from a dispenser including a Micro-Electro-Mechanical System, the adhesive is dispensed as a plurality of individual sub-beads on the contacting surface; or wherein the Micro-Electro-Mechanical System is a thermal ink jet device.

Payne teaches a method of binding that utilizes a thermal ink jet for the purpose of firing a plurality of individual drops of glue and thereby forming a predetermined

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adhesive binding position (see column 1, line 50 to column 2, line 24). Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to have combined the method of Lawton with the thermal ink jet system of Payne in order to have a method of binding which is low cost and adaptable to a wide variety of implementations.

The modified invention of Lawton does not disclose that the adhesive is dispensed as a continuous bead on the contacting surface. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the ink jet device to fire drops of adhesive at a rate in which the adhesive forms a continuous bead on the contacting surface for the purpose of having the sheet adhered to the cover without any spaces in the bond, thereby causing gaps which could expand to unattach the sheet from the cover, because it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges (the rate of droplet formation) involves only routine skill in the art.

The modified invention of Lawton does not distinctly disclose that the volume of each individual sub-bead (drop) is less than or equal to ten nanoliters, or that a volume of the continuous bead is less than or equal to three microliters. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the ink jet device to fire whatever size sub-bead or continuous bead was desired for the purpose of providing more or less adhesion between the sheets and the cover, because it has been held that where the general conditions of a claim are

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disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art.

The modified invention of Lawton does not distinctly disclose wherein applying the adhesive places a plurality of nanoliter volume beads on the contacting surface at an application rate of no slower than 1 bead per 100 microseconds. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the ink jet device to fire the beads at whatever speed was desired for the purpose of providing more or less adhesion between the sheets and the cover, because it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art.

The modified invention of Lawton does not distinctly disclose wherein the plurality of sheets includes a sheet of 20 lb bond paper or a cellulosic sheet, the adhesive is a light curable adhesive having a viscosity of 10,000 to 12,000 centipoises, a volume of each individual sub-bead is less than or equal to ten nanoliters, and the adhesive cures in less than or equal to 20 seconds to bond the contacting surface to the cover. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used whatever paper or sheet was desired for the purpose of having a lighter book or stronger pages, to have used whatever viscosity of adhesive was desired for the purpose of improving the flow through the ink jet device, to have modified the ink jet device to fire whatever size sub-bead was desired for the purpose of providing more or less adhesion between the sheets and the cover, and to have chosen

an adhesive that cures at a rapid rate for the purpose of increasing the speed of book production, because it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art.

The modified invention of Lawton does not distinctly disclose wherein the adhesive has a first surface energy, the contacting surface has a second surface energy, and a difference between the first surface energy and the second surface energy is from 13 to 25 dynes per cm; or wherein the plurality of sheets have a surface energy of 30 to 37 dynes per cm, the adhesive is a light curable adhesive having a surface energy of 50 to 55 dynes per cm, and wherein calculations for surface energy follow the method of Owens and Wendt are based on Young's equation, and the surface energy is determined from contact angles of a polar solvent and a nonpolar solvent. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have selected adhesive and sheets having whatever surface energy was desired for the purpose of increasing or decreasing the bond between the sheets and the cover based on whatever strength is desired, because it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art.

21. Claims 13, 14, 34, and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lawton in view of Cobene, II et al. (U.S. Patent Publication 2002/0067977 A1).

Regarding claims 13, 14, 34, and 35, Lawton discloses the invention substantially as claimed, except Lawton does not disclose wherein the plurality of sheets includes a folded sheet and the contacting surface is a folded edge of the folded sheet, or constraining the folded sheet to maintain the folded edge straight. Cobene, II et al. teaches a method of book binding which uses folded sheets 90 that are aligned with respect to perforations 92 at the edge of the sheets, in order to form a text body in which the sheets are properly aligned for the purpose of increasing the binding strength of the bound text body. Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to have combined the method of Lawton with the sheets of Cobene, II et al. in order to have a method of binding in which the papers are bound to the book in a manner that improves the performance of the bookbinding system.

Response to Arguments

22. Applicant's arguments with respect to the claims have been considered but are moot in view of the new ground(s) of rejection.

23. For the reasons as set forth above, the rejections are maintained.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eric A. Gates whose telephone number is 571-272-5498. The examiner can normally be reached on Monday-Thursday 7:45-6:15.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Monica Carter can be reached on 571-272-4475. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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10 May 2007



MONICA CARTER
SUPERVISORY PATENT EXAMINER